SONY.

Multi-Effect Processor

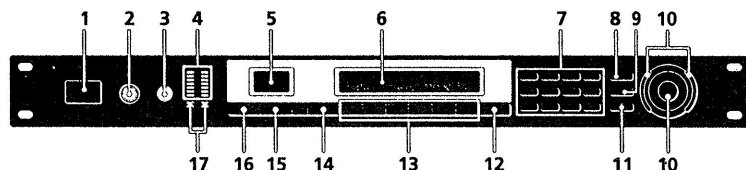Operating Instructions

EN

DPS-V77

Getting Started

Front panel

Rear panel

1 POWER ON/OFF switch

Press this switch to turn the power on and off. Turning on the power recalls the last used memorized effect and activates play mode automatically.

2 INPUT level adjustment knob

Turn the knob to the left or right to adjust the input level. Adjustments can be made independently for each channel. The outer knob to adjusts channel 1 (CH 1) and the inner knob adjusts channel 2 (CH 2) (page 14).

3 OUTPUT level adjustment knob

Turn to the left or right to adjust the output level from the output jacks.

4 Input level meter

Indicates the strength of the input signal from –36 dB to CLIP (overload) with green, orange, and red indicators (page 14).

5 Memory number display window

Displays the memory number of current effect. 99 different effects are stored in each of the PRESET memory banks and up to 99 effects can be stored in each of the USER memory banks.

6 Multi display

Displays various information, such as the name of the currently selected effect, parameter values, and messages.

7 Number buttons

Use these buttons to recall effects from the currently chosen memory bank directly and input exact parameter values (page 14).
Use ▲ or ▼ while holding down ENTER/SHIFT to make incremental adjustments to parameter values (page 14).

8 SAVE button

Use this button after changing parameter values to save a custom effect in one of the USER memory banks (page 22).

9 SYSTEM button

Use this button to access the system menus and customize the effector's operating environment (pages 24 and 25).

10 Operation dial/Shuttle ring

Use to select memory numbers from the currently selected memory bank and make adjustments to parameter settings. The operation dial lets you advance in one-step increments. The jog dial lets you advance rapidly in larger increments. The rate of advance (or value change) changes according to the angle of the shuttle ring.

11 ENTER/SHIFT button

Use this button to enter a memory number or parameter value input with the numeric buttons (page 14).
Hold down while pressing the ▲ or ▼ button to make a one-step adjustment to a memory number or a parameter value (page 14).

12 EXIT button

Press after or during a setting procedure to return to the previous screen or mode, or to de-select an active parameter on the play screen.

13 FUNCTION A-F buttons

Use to select the items displayed above the respective buttons.

14 EDIT/PAGE button

Press during play mode to access the edit screen and make changes to the current effect (page 17).
Press to display different pages of multi-page menus (page 17).

15 BANK/COMPARE button

Press to select the memory bank containing the effect you desire (page 14). In edit mode, press to compare alterations in effect parameters to the unaltered effect (page 18).
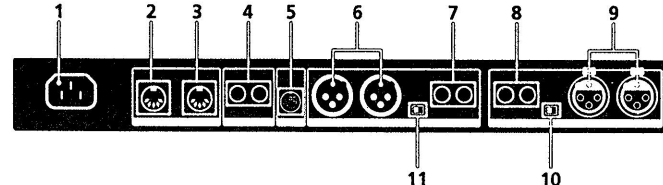
16 BYPASS/MUTE button

Press to route the signal around the effect processing circuitry so that the signal being input is output unchanged (bypass), or to completely cut output from the effector (mute), (see page 15).

17 Memory bank indicators

Indicate the currently selected memory bank: PRESET 1, PRESET 2, USER 1, or USER 2 (see page 14).

1 AC power cord socket

For connecting the effector to an AC power outlet using the supplied AC power cord.

2 MIDI THRU/OUT terminal

For sending and/or relaying MIDI command signals from the effector to other components (see page 26 to select THRU or OUT).

3 MIDI IN terminal

Input for MIDI command signals. Use a commercially available MIDI cable to connect this terminal to another component's MIDI OUT (or THRU) terminal.

4 PEDAL 1 and 2 jacks

Inputs for pedal switches and/or volume control (pages 21 and 25).

5 DIGITAL I/O terminal

Use digital interface cable RK-V77A (for AES/EBU) or RK-V77S (for SPDIF) to make digital connections between the effector and other components (pages 8, 12, 13 and 29).

6 BALANCED OUTPUT jacks

Balanced output jacks for channel 1 and channel 2 (pages 9 and 10).

7 STANDARD OUTPUT jacks

Standard output jacks for channel 1 and channel 2 (pages 9 and 10).

8 STANDARD INPUT jacks

Standard input jacks for channel 1 and channel 2 (pages 9 and 10).

9 BALANCED INPUT jacks

Balanced input jacks for channel 1 and channel 2 (pages 9 and 10).

10 INPUT level selector switch

Use to set the input level of the STANDARD INPUT jacks (8) to match the output level of the connected equipment. You can select a –20 dB or +4 dB input level.

11 OUTPUT level selector switch

Use to set the output level of the STANDARD OUTPUT jacks (7) to match the input level of the connected equipment. You can select a –20 dB or +4 dB output level.
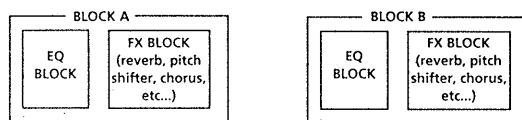
Understanding the Signal Flow

This unit takes in audio signals from two types of input jacks (digital and analog), processes them using various internal blocks, and outputs them through the analog and digital output jacks. To make the most of this unit, it is essential that you have a firm understanding of the audio signal flow. This section provides an explanation of the internal blocks and how they process the input and output audio signals.
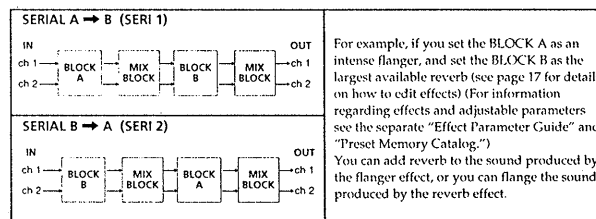
Block and structure

The audio signal processor in this unit is divided into two parts, BLOCK A and BLOCK B. Each of these blocks is composed of an EQ BLOCK and an FX (effect) BLOCK. The EQ BLOCK works as an equalizer. The FX BLOCK contains a large number of multi-effects.

```
┌──────── BLOCK A ────────┐      ┌──────── BLOCK B ────────┐
│ ┌──────┐ ┌────────────┐ │      │ ┌──────┐ ┌────────────┐ │
│ │  EQ  │ │  FX BLOCK   │ │      │ │  EQ  │ │  FX BLOCK   │ │
│ │BLOCK │ │(reverb, pitch│ │     │ │BLOCK │ │(reverb, pitch│ │
│ │      │ │shifter, chorus,│ │    │ │      │ │shifter, chorus,│ │
│ │      │ │  etc...)     │ │      │ │      │ │  etc...)     │ │
│ └──────┘ └────────────┘ │      │ └──────┘ └────────────┘ │
└─────────────────────────┘      └─────────────────────────┘
```

The positioning of the EQ block and the FX block is determined when editing the EQ BLOCK by choosing either "Pre" or "Post" in the [Mode] parameter. In other words, you can choose, independently within BLOCK A and BLOCK B, wether to add the effect to the sound coming from the equalizer, or equalize the sound produced by the effect.

```
When you select              When you select
     "Pre"                        "Post"
  ┌─────┐ ┌─────┐             ┌─────┐ ┌─────┐
→ │ EQ  │→│ FX  │→          → │ FX  │→│ EQ  │→
  │BLOCK│ │BLOCK│             │BLOCK│ │BLOCK│
  └─────┘ └─────┘             └─────┘ └─────┘
```

It's also necessary to determine the positions of the larger blocks, BLOCK A and BLOCK B. Their positioning, the way they are connected, is called the "structure." Set the structure according to the kind of sound you want to make. The structure screen not only lets you choose the structure type (see the following chart), but also lets you adjust the output level for each block (represented in the chart by the MIX BLOCK).

SERIAL A ➡ B (SERI 1)	
IN ─── ch 1 ─ BLOCK A ─ MIX BLOCK ─ BLOCK B ─ MIX BLOCK ─ OUT ch 1 / ch 2 ─── ch 2	For example, if you set the BLOCK A as an intense flanger, and set the BLOCK B as the largest available reverb (see page 17 for details on how to edit effects) (For information regarding effects and adjustable parameters see the separate "Effect Parameter Guide" and "Preset Memory Catalog.") You can add reverb to the sound produced by the flanger effect, or you can flange the sound produced by the reverb effect.
SERIAL B ➡ A (SERI 2)	
IN ─── ch 1 ─ BLOCK B ─ MIX BLOCK ─ BLOCK A ─ MIX BLOCK ─ OUT ch 1 / ch 2 ─── ch 2	

PARALLEL (PARA)	
IN ─ ch 1 / ch 2 ─ BLOCK A / BLOCK B ─ MIX BLOCK ─ OUT ch 1 / ch 2	This structure lets you apply effects, like flanger and reverb, separately and then mix them before output. In this case, there's no undulation from the flanger in the reverb.
DUAL (DUAL)	
IN ─ ch 1 ─ BLOCK A / ch 2 ─ BLOCK B ─ MIX BLOCK ─ OUT ch 1 / ch 2	This structure lets you isolate ch 1 and ch 2. For example, you can connect a guitar to ch 1 and a drum machine to ch 2, then add a flanger effect to the guitar and a reverb effect to the drum machine.
MORPHING (MORPH)	
IN ─ ch 1 / ch 2 ─ BLOCK A ─ MIX BLOCK ─ OUT ch 1 / ch 2	This structure lets you make seamless changes between effects stored in the memory banks. In other words, it keeps the current effect from suddenly cutting out when you change to another effect. For details on morphing, see "Morphing" on page 16.

Setting the INPUT/OUTPUT levels

This chart shows the overall signal flow relationship between this unit's inputs and outputs. The following information is an overview of all you need to know regarding this unit's inputs and outputs.
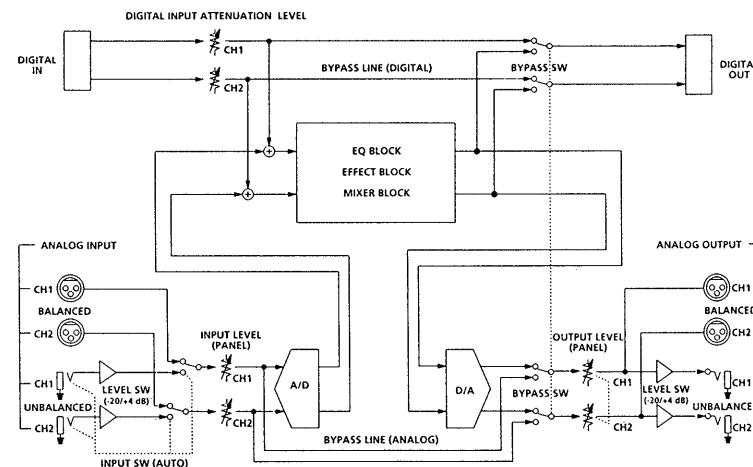
☼ You can use the effector as an A/D or D/A converter by turning off all the effects.

Analog IN/OUT and digital IN/OUT

This unit is provided with both analog and digital inputs and outputs, and you can use both of them at the same time. The input block in the SYSTEM: Setup menu lets you determine whether to use the analog, the digital, or both the analog and the digital INPUT/OUTPUT jacks.

Analog INPUT priority

This unit is provided with both PHONE and XLR type analog INPUT and OUTPUT jacks. Although the signal is always output from both the PHONE and XLR jacks, the PHONE jacks are given priority for the input signal. When the PHONE and XLR INPUT jacks are used at the same time, the XLR signal is automatically cut.

Emphasis

Some older CDs have "emphasized" high frequency sounds. When outputting an analog signal from an "emphasized" digital source, it is necessary to "de-emphasize" the high frequency sounds and bring them back to their original levels. The [Input] block in the SYSTEM: Setup menu lets you determine whether de-emphasis will be carried out automatically, or manually.

Adjusting the INPUT/OUTPUT levels (to prevent clipping)

The numbers on the level meter show, in decibels, how much room is left before the INPUT signal reaches the clip point. If the input signal exceeds the clip point (0 dB), clip noise breaks out. This unit's effect processor incorporates a 12 dB leeway. Therefore, even if you raise the signal level to +12 dB, with the EQ block for example, the internal processor will not clip the signal. It is necessary, however, to reduce levels over 0 dB before they are output. To adjust the effect level, choose [Mixer] in the EDIT mode. See "Changing the effect parameters" on page 17 to edit an effect.

> ☼
>
> Even though you can decrease levels in the mixer block, the most important factor in preserving sound quality is the input level. The following is a general guide line for adjusting the input level, but your eyes and ears are ultimately the most useful tools in determining and maintaining the appropriate input level.

INPUT jacks	Signal	level meter reading
Digital (with the digital attenuator set to 0 dB)	0 dB digital (full swing)	0 dB
Analog (+ 4 dB) BALANCED or UNBALANCED (with the front panel INPUT knob set to 0 dB)	+ 21 dB signal	0 dB
	+ 4 dB signal	–17 dB
Analog (– 20 dB) UNBALANCED (with the front panel INPUT knob set to 0 dB)	– 2 dB signal	0 dB
	– 20 dB signal	–18 dB

Bypass and Mute

The bypass function outputs the sound of the signal originally input into the effector without adding any effects. Pressing the bypass button turns the bypass function on and off. "Mute" is also available as a form of bypass. When the BYPASS button is set to mute, the sound of the originally signal is cut in addition to the sound of the effects. Therefore, no sound comes from the unit. You can set BYPASS button to operate as either "Mute" or "Bypass" in the SYSTEM: Setup menu.

> ☼
>
> Muting the sound is more than just turning the volume to "0." It is designed to prevent sound from returning to the mixer when the unit is connected in a send-return loop with a mixer. Ideally, when this unit is connected to a mixer, the sound of the input signal is should not be output from this unit, only the sound of the effects should be output (see "Cutting the Direct Sound (Dry On/Off)" on page 25). In this situation, however, using bypass only cuts the sound of the effects, and the sound input into the effector goes back to the mixer, producing a double signal. Using mute prevents the sound input into the effector from returning to the mixer and insures that only the sound generated from the original source (guitar, keyboard, etc.) reaches the mixer. In other words, it is the same as bypass.
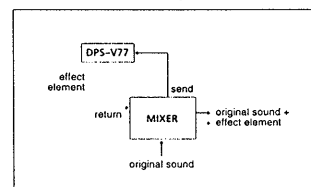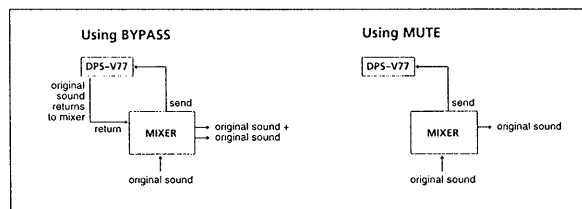
When using effects

When NOT using effects

Hooking Up

Basic Hookups

- Before connecting this unit to another device, be sure to unplug the AC power cord from the power outlet.
- Turn off the power switch on this unit and all components to be connected, such as keyboards and active speakers (speakers with built in amplifiers).
- After all the connections, double check that the connections are correct before plugging the AC power cord back into the power outlet.
- If the connected components output large signals that cause distortion, adjust the INPUT knob on this unit to lower the input level, or lower the output level of the connected component.

Example 1: Hooking up to an instrument
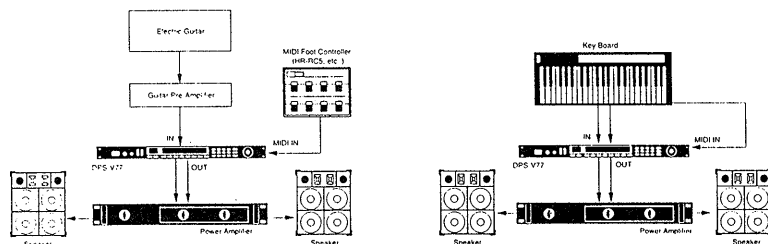
Example 2: Hooking up to a mixer (cutting the direct sound)
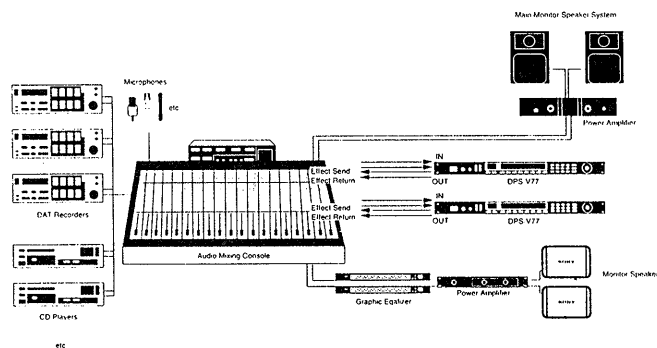
When using the effector in a send-return loop
- We recommend setting the direct output level to −∞ (minus infinity). (See "Cutting the Direct Sound (Dry On/Off)" on page 25.)
- We also recommend setting the BYPASS function to MUTE (as shown on page 15).

Digital Hookups

By taking advantage of the DPS-V77's DIGITAL I/O connectors, you can make digital recordings on DAT recorders, input digital signals from CD, and make digital connections to mixers (see page 29).
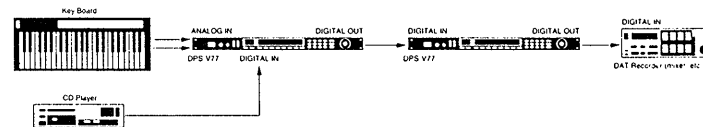

Setting the Digital IN/OUT

To obtain the best possible sound quality when using the DIGITAL I/O jack, we recommend setting the input mode to digital, instead of both (digital and analog).
The following steps show you how to set the input mode, adjust the digital input level, and select the "de-emphasis" mode.
Refer to "Understanding the Signal flow on page 8 for details regarding the digital signal flow. Also, see "Input Settings and the Input Signal" and "Digital I/O Terminal Chart" on page 29 for additional information.
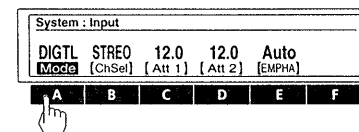
1 Press SYSTEM.

2 Press FUNCTION A to choose "Set Up."
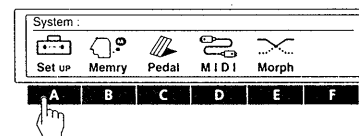
3 Press FUNCTION A to choose "Input."
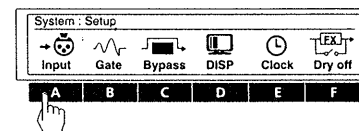
4 Press FUNCTION A [Mode] and use the operation dial to select "DIGTL" (digital).

You can select analog (ANALG), digital (DIGTL), or both analog and digital (Both) jacks for input and output.

5 Press FUNCTION B [ChSel] and use the operation dial to select the input channel(s).

To use both CH1 and CH2, choose stereo (STREO).
To use only CH1, choose monaural 1 (MONO 1).
To use only CH2, choose monaural 2 (MONO 2).

These setting can also be made when using the analog inputs.

6 Press FUNCTION C [Att 1] or D [Att 2] and use the operation dial to adjust the digital input levels.

[Att 1] lets you adjust the digital input level for CH 1.
[Att 2] lets you adjust the digital input level for CH 2.
Press FUNCTION C or D twice to link the parameters and adjust both digital input levels at the same time.

See pages 9 and 10 for details regarding the input level.

7 Press FUNCTION E [EMPHA] and use the operation dial to select the de-emphasis mode.

"Auto" activates de-emphasis automatically according to the type of digital signal being input.
"On" de-emphasizes all signals input through the DIGITAL I/O jack.
"Off" turns de-emphasis off and does not alter signals input through the DIGITAL I/O jack.

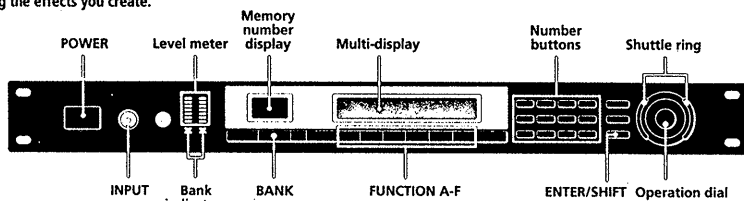See page 10 for details on the emphasis function.

Note
This unit's digital input only accepts signals with either 44.1 kHz or 48 kHz sampling frequencies. It cannot be used with 32 kHz signals.

Choosing an Effect
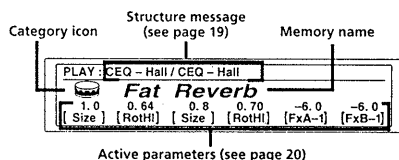
Recalling Effects from the Memory

The effector comes with 198 different effects stored in the preset memory as well as a 198 effect memory capacity for storing the effects you create.

You can use the following procedure to select effects from either the preset memory or the user memory banks.

POWER Level meter Memory number display Multi-display Number buttons Shuttle ring

INPUT Bank indicators BANK FUNCTION A-F ENTER/SHIFT Operation dial

1 Press POWER to turn on the power.

The PLAY screen is displayed.

Category icon Structure message (see page 19) Memory name

```
PLAY : CEQ – Hall / CEQ – Hall
       Fat Reverb
  1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ] [RotHi] [ Size ] [RotHi]  [FxA–1]  [FxB–1]
```

Active parameters (see page 20)

2 Turn INPUT to adjust the analog input levels (for digital levels, see page 13).

If the CLIP indicators light, the input level is set too high. Be sure to set the input level correctly since it has a direct relationship to the quality of the effects (see page 10 for details).
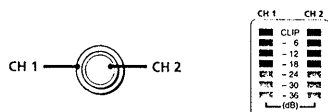
3 Press BANK to select the memory bank containing the effect you want (PRESET/USER 1 or 2).

Only the bottom indicator lights for PRESET or USER bank 1.

Both the top and bottom indicators light for PRESET or USER bank 2.

PRESET banks 1 and 2 hold preset effects.
USER banks 1 and 2 are for user memory.

### 4 Select the effect you desire (1-99).

To select effects using the operation dial/shuttle ring, rotate the dial or ring to display the number of the effect you desire.

Shuttle ring

Operation dial
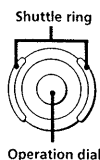
To select effects using the number buttons, input the number of the effect you want, then press ENTER. (If you press the wrong number, input the number again before pressing ENTER.)

➡ ENTER
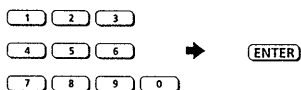
To select effects using the arrow buttons, hold down SHIFT and press either ▲ or ▼ until the number you desire appears in the display.
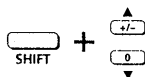
Before you turn on the connected components
Be sure to turn the volume level down to avoid an unexpected output of massive volume.

To change effect parameters from the PLAY screen
See "Editing in PLAY Mode (direct edit)" on page 20.

## Outputting Without Effects (BYPASS/MUTE)

The effector comes with two different bypass modes, Bypass and Mute. Therefore, you can use the BYPASS button to cut output of the original sound or to output the original sound without effects depending on which bypass mode you select.
Once you set the BYPASS mode, just press BYPASS to activate Bypass or Mute. Press again to cancel the bypass or mute .
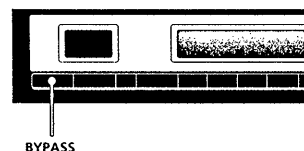
BYPASS

Choosing the bypass mode

1 Press SYSTEM.
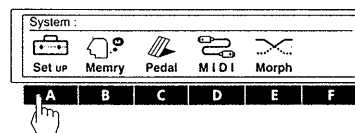
2 Press FUNCTION A to choose "Set Up."
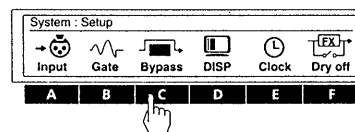
3 Press FUNCTION C to choose "Bypass."

4 Use the operation dial to select BYPAS or Mute.

```
System : Bypass Mode
BYPAS
Mode
```
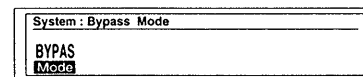
select	when
BYPAS	you want to output the original signal without adding any effects. Only the original signal is output (see "Bypass and Mute" on page 11).
Mute	you want to completely cut the sound output from the effector (including the input signal). We especially recommend using mute when connecting the effector in a send-return loop with a mixer (as shown on page 12).

Press EXIT a few times to return to the PLAY screen.

Choosing an Effect

When the structure is set to [MORPH] (see page 8 for details on the system structure, see page 19 to change the structure), the effector creates a seamless change between effects when you switch to other memory numbers whose structures are also set to [MORPH].

Note
The effector does not respond to any commands (including MIDI) during the morphing process. It will not respond until the preset morphing time has elapsed (see below).
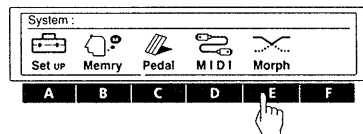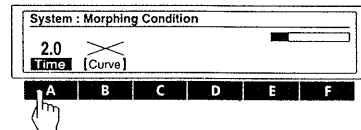
Setting the morphing time and curve

1 Press SYSTEM.

2 Press FUNCTION E to select "Morph."

```
System :
  ┌──┐  ◁│°   ╱╱╱   ⊂⊃   ⟩╳⟨
  Set uP  Memry  Pedal  M I D I  Morph
  ┌───┬───┬───┬───┬───┬───┐
  │ A │ B │ C │ D │ E │ F │
  └───┴───┴───┴───┴───┴───┘
                        🖑
```
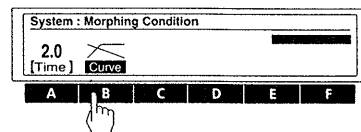
3 Press FUNCTION A [Time] and use the operation dial to set the morphing time.

The morphing time is the length of time from the beginning to the end of the morphing process. The effector will not respond to any commands (including MIDI) during this period.

```
┌─────────────────────────────────┐
│ System : Morphing Condition      │
│                        ▬▬▬       │
│  2.0   ╳                         │
│  Time  [Curve]                   │
├───┬───┬───┬───┬───┬───┤
│ A │ B │ C │ D │ E │ F │
└───┴───┴───┴───┴───┴───┘
  🖑
```

4 Press FUNCTION B [Curve] to select the morphing curve.

```
┌─────────────────────────────────┐
│ System : Morphing Condition      │
│                     ▬▬▬▬▬        │
│  2.0   ╳                         │
│  [Time]  Curve                   │
├───┬───┬───┬───┬───┬───┤
│ A │ B │ C │ D │ E │ F │
└───┴───┴───┴───┴───┴───┘
      🖑
```

╳ Provides a gradual transition to the next sound.
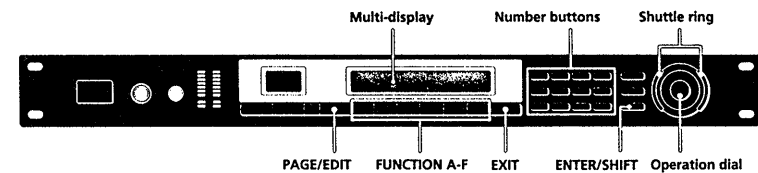╳ Brings the next sound in quickly while the first sound fades out.

Note
You cannot set the morphing time and curve independently for each effect.
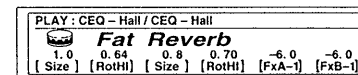
Processing Effects (EDIT)

The effector comes with 198 different effects stored in the preset memory as well as a 198 effect memory capacity for storing the effects you create by altering parameter values.

Use the following procedure to create original effects by editing the effects stored in the preset memory banks.
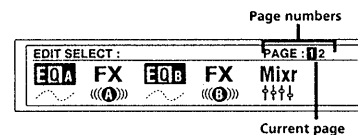
Multi-display   Number buttons   Shuttle ring
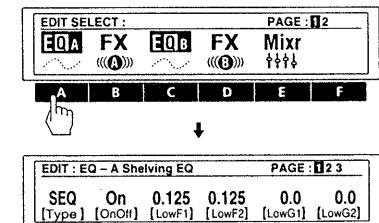
PAGE/EDIT   FUNCTION A-F   EXIT   ENTER/SHIFT   Operation dial

1 Choose an effect.

```
┌─────────────────────────────────────────────┐
│ PLAY : CEQ – Hall / CEQ – Hall               │
│  📷   Fat Reverb                             │
│  1. 0   0. 64    0. 8    0. 70   –6. 0  –6. 0 │
│ [ Size ] [RotHI] [ Size ] [RotHI] [FxA–1] [FxB–1]│
└─────────────────────────────────────────────┘
```

2 Press EDIT/PAGE.

The EDIT SELECT screen appears in the display.

Page numbers

```
┌─────────────────────────────────────────────┐
│ EDIT SELECT :                   PAGE : ▉2     │
│  EQA  FX  EQB  FX  Mixr                      │
│    ((A))    ((B))   ↑↑↑↓                     │
└─────────────────────────────────────────────┘
```
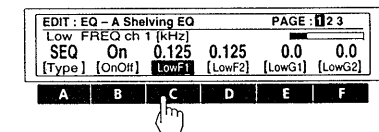
Current page

The numbers in the upper right corner of the display indicate the number of pages (basic screens) in the current block. The number in the black square indicates the current page.
Press EDIT/PAGE again to switch to the next page.
Press EDIT/PAGE while holding down ENTER/SHIFT to page backwards.

3 Use the FUNCTION buttons (A-F) to choose the block you want to change.

The screen for the chosen block appears in the display. For example, pressing FUNCTION A selects "EQ A" and the EDIT: EQ A screen appears (the example below shows a shelving equalizer).
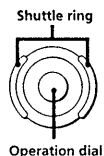
```
┌─────────────────────────────────────────────┐
│ EDIT SELECT :                   PAGE : ▉2     │
│  EQA  FX  EQB  FX  Mixr                      │
│    ((A))    ((B))   ↑↑↑↓                     │
├───┬───┬───┬───┬───┬───┤
│ A │ B │ C │ D │ E │ F │
└───┴───┴───┴───┴───┴───┘
  🖑            ↓
```

```
┌─────────────────────────────────────────────┐
│ EDIT : EQ – A Shelving EQ        PAGE : ▉2 3  │
│ SEQ   On   0.125  0.125   0.0    0.0         │
│ [Type] [OnOff] [LowF1] [LowF2] [LowG1] [LowG2]│
└─────────────────────────────────────────────┘
```

4 Use the FUNCTION buttons (A-F) to select the parameter you want to change.

```
┌─────────────────────────────────────────────┐
│ EDIT : EQ – A Shelving EQ        PAGE : ▉2 3  │
│ Low  FREQ ch 1 [kHz]             ▬▬▬          │
│ SEQ   On   0.125  0.125   0.0    0.0         │
│ [Type] [OnOff] LowF1 [LowF2] [LowG1] [LowG2] │
├───┬───┬───┬───┬───┬───┤
│ A │ B │ C │ D │ E │ F │
└───┴───┴───┴───┴───┴───┘
          🖑
```

5 Turn the operation dial to choose the setting you desire.
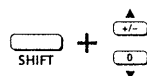
Shuttle ring

Operation dial

To change numerical values
Use the number buttons and ENTER to input the value you want directly. If you press the wrong number, input the number again before pressing ENTER.

(1)(2)(3)
(4)(5)(6) ➡ (ENTER)
(7)(8)(9)(0)
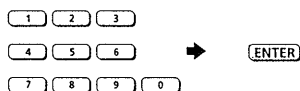
To change numerical values using the arrow buttons, hold down SHIFT and press either ▲ or ▼ until the value you desire appears in the display.

⊂⊃ + ⊂+/-⊃
SHIFT   ⊂0⊃

To change another parameter on the same page of the same block
Repeat steps 4 and 5 above.

To change a parameter on a different page of the same block
Press PAGE/EDIT and follow steps 4 and 5 above.

To make changes to another block in the same effect
Press EXIT to return to the EDIT SELECT: screen, then follow steps 2 through 4 above.

To return to the PLAY screen after changing parameters
Press EXIT a few times.
Changes made to the parameter settings are replaced by the original settings when you select another effect from the memory. To save the new parameter settings, use the SAVE function (page 22).

To return to the original parameter settings after making changes which have not yet been saved
Press EXIT a few times to get to the PLAY screen, then select another effect from the memory. The settings for the previous effect return to the original values automatically.

Convenient Ways to Edit

To change the same parameter for CH1 and CH 2 at the same time (LINK)
Press the FUNCTION button for the parameter you want to change twice. The characters for the other channel's parameter also reverse and you can adjust both parameters at the same time.

Tapping in a parameter setting (Tap Tempo)
Certain parameters, like Delay Time, can be set by tapping on the ENTER button. After choosing the parameter you want to set, press the ENTER button repeatedly to tap in the tempo you desire. The processor measures the timing of the last two taps and sets the parameter accordingly.
This function can only be used with parameters whose parameter name display is followed by an asterisk (*).

Comparing Effect Parameters

Press BANK/COMPARE while editing an effect to compare the sound of the current parameter settings with the sound of the original, unedited effect.

Press BANK/COMPARE or EXIT to return to the current parameter settings.

Copying Effect Parameters

In EDIT mode, you can copy the parameter settings from an effect block in a given USER or PRESET memory to the same kind of effect block in the current USER memory. For example, you can copy the EQA parameter settings from another USER (or PRESET) memory number into the EQA (or EQB) block of the USER memory number you are currently editing.
1 Follow steps 1 through 3 on the previous page to select the block (e.g. EQA) you want to copy to.
2 Press FUNCTION A [Type] twice.
Confirmation for entering the "parameter copy" screen appears in the display. (Pressing [Type] twice during another edit operation will also activate this function.)
Press FUNCTION F [Yes] to proceed.
Press FUNCTION A [No] to cancel and return to the EDIT: mode.
3 Use FUNCTION button A [MEM#] to select the memory number you want to copy from.
4 Use FUNCTION button B or C to select the effect block you want to copy the parameters from.
5 Press FUNCTION F [EXEC] to copy the parameter settings from the effect block you selected in step 4.

To copy an entire effect, see page 23.
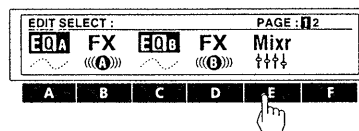

Changing the Structure

The effector contains two main effect blocks which perform signal processing to add effects to the incoming signals. You can produce different sounds by changing the structure (configuration) of these two blocks (see page 8 for details).
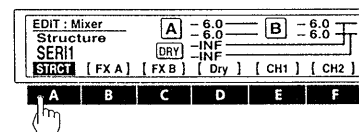
1 Choose the effect you want to edit.

```
PLAY : CEQ – Hall / CEQ – Hall
🔊  Fat  Reverb
1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [ RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
```

2 Press EDIT/PAGE.

3 Press FUNCTION E to choose "Mixr."

```
EDIT SELECT :                      PAGE : 2
EQA  FX   EQB  FX   Mixr
      (((A)))        (((B)))
─────────────────────────────────
A   B   C   D   E   F
```

4 Press FUNCTION A [STRCT].

```
EDIT : Mixer       [A] –6.0 ── [B] –6.0
Structure              –6.0          –6.0
SERI1            [DRY] –INF
STRCT  [ FX A ]  [ FX B ]  [ Dry ]  [ CH1 ]  [ CH 2 ]
─────────────────────────────────
A   B   C   D   E   F
```
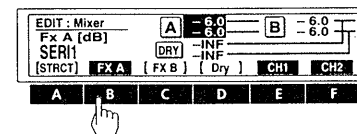
5 Turn the operation dial to choose the structure you desire.

SERI 1 (serial processing from FX A to FX B)
SERI 2 (serial processing from FX B to FX A)
PARA (parallel processing of FX A and FX B)
DUAL (processes CH 1 into FX A and CH 2 into FX B)
MORPH (morphing, see page 16)

See pages 8 and 9 for descriptions of each structure.

---

6 Use FUNCTION B [FX A], C [FX B], or D [Dry], if you want to change the output levels.

```
EDIT : Mixer       [A] –6.0 ── [B] –6.0
Fx A [dB]              –6.0          –6.0
SERI1            [DRY] –INF
[STRCT]  FX A  [ FX B ]  [ Dry ]  CH1  CH2
─────────────────────────────────
A   B   C   D   E   F
```

Press FUNCTION E or F after choosing FX A, FX B, or Dry to adjust the levels for each channel independently.

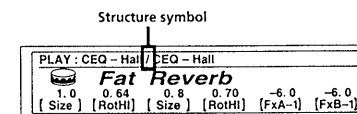**7** Turn the operation dial to choose the setting you desire.

See page 10 for additional information regarding the output levels.

Press SAVE to store the new structure settings (see page 22).

Press EXIT a few times to return to the play screen.

Checking the Structure in PLAY Mode

The symbol in the center of the title bar changes according to the structure of the effect.

Structure symbol

```
PLAY : CEQ – Hall / CEQ – Hall
🔊  Fat  Reverb
1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [ RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
```

Effect names dimmed in the PLAY: bar are effects that are currently set to [OFF].

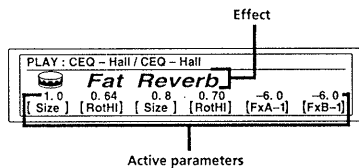| symbol	structure
>	SERI 1 (serial 1) FX A → FX B
<	SERI 2 (serial 2) FX B → FX A
/	PARA (parallel) FX A + FX B
:	DUAL (dual) FX A (ch 1) + FX B (ch 2)
No Block B	MORPH (morphing) FX A → next memory

See pages 8 and 9 for descriptions of each structure.
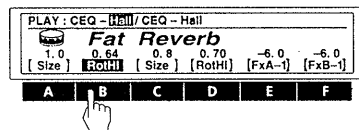
Editing in PLAY Mode (direct edit)

With direct edit you can edit up to 6 different parameters directly from the PLAY screen. These parameters are called Active Parameters.

The following steps show you how to edit from the play screen once you've designated the Active Parameters. To designate Active Parameters, see "Selecting the Active Parameters" below.

1 Choose an effect from the memory banks.

The parameters available for direct editing (Active Parameters) appear directly above their corresponding FUNCTION button.

Effect

```
PLAY : CEQ – Hall / CEQ – Hall
🎛  Fat  Reverb
  1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
```

Active parameters

2 Press the FUNCTION button (A-F) of the parameter you want to adjust.

```
PLAY : CEQ – Hall / CEQ – Hall
🎛  Fat  Reverb
  1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
A   B   C   D   E   F
```

To adjust parameters not displayed in the PLAY screen, see "Changing Effect Parameters" on page 17.
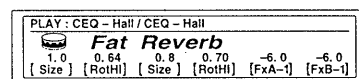
3 Use the operation dial or shuttle ring to adjust the parameter.

When changing numerical values, you can use the number buttons to input the value directly, or hold SHIFT and press ▲ or ▼ to change the value one unit at a time.

### Selecting the Active Parameters

The following steps show you how to select the parameters that will appear in the PLAY screen for direct editing.

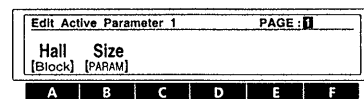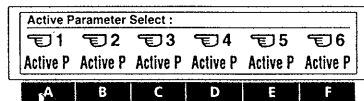**1 Choose an effect from the memory banks.**

```
PLAY : CEQ – Hall / CEQ – Hall
🎛  Fat  Reverb
  1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
```

2 Press PAGE/EDIT twice.

3 Press FUNCTION B to choose "Active P."

```
EDIT SELECT :                    PAGE : 1  2
RTC    Active P
       –0–   🎛
A   B   C   D   E   F
```
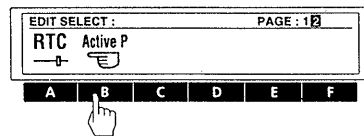
4 Press a FUNCTION button (A-F) to choose a location (1-6).

Active P1-Active P6 correspond to FUNCTION buttons A-F respectively. (e.g., FUNCTION B is used to select Active P2 from the PLAY screen.)

```
Active Parameter Select :
🎛1   🎛2   🎛3   🎛4   🎛5   🎛6
Active P  Active P  Active P  Active P  Active P  Active P
A   B   C   D   E   F
```
↓
```
Edit Active Parameter 1          PAGE : 1
Hall    Size
[Block]   [PARAM]
A   B   C   D   E   F
```

5 Press FUNCTION A [Block] and use the operation dial to select the effect block containing the parameter you want to appear on the PLAY screen.

6 Press FUNCTION B [PARAM] and use the operation dial to select the parameter that will appear on the PLAY screen.

Press EXIT a few times to return to the PLAY screen.
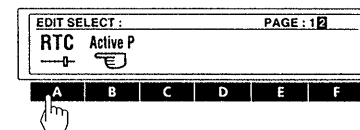
Setting the Real Time Control (RTC)

By using MIDI controls, such as dampers and modulation wheels, you can control various characteristics of an effect in real time. Since control conditions vary for each type of effect, control assignments are made separately for each effect block parameter in the RTC block. The effector is provided with 6 MIDI RTC channels, each carrying independent control source and destination (parameter) information.
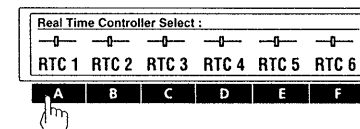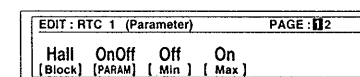
1 Choose an effect from the memory banks.

```
PLAY : CEQ – Hall / CEQ – Hall
🎛  Fat  Reverb
  1.0    0.64    0.8    0.70    –6.0    –6.0
[ Size ]  [RotHI]  [ Size ]  [RotHI]  [FxA–1]  [FxB–1]
```

2 Press PAGE/EDIT twice.

3 Press FUNCTION A to choose "RTC."

```
EDIT SELECT :                    PAGE : 1  2
RTC    Active P
–0–   🎛
A   B   C   D   E   F
```

4 Use the FUNCTION buttons (A-F) to choose an RTC channel (1-6).

```
Real Time Controller Select :
–0–   –0–   –0–   –0–   –0–   –0–
RTC 1   RTC 2   RTC 3   RTC 4   RTC 5   RTC 6
A   B   C   D   E   F
```

5 Use page 1 to specify the parameter you want to control.

```
EDIT : RTC 1  (Parameter)        PAGE : 1  2
Hall    OnOff    Off    On
[Block]   [PARAM]   [ Min ]   [ Max ]
```

[Block]: selects the block to be controlled, select OFF if you don't want to use that RTC channel.
[PARAM]: specifies the parameter to be controlled from the selected block.
[Min]: specifies the minimal value of the parameter's adjustable range.
[Max]: specifies the maximal value of the parameter's adjustable range.

6 Press PAGE/EDIT and use page 2 to specify kind of controller you will use.

```
EDIT : RTC 1   (Source)          PAGE : 1  2
C0      0      0
[Sourc]   [ Min ]   [ Max ]
```
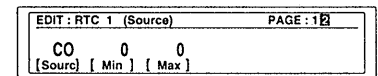
[Sourc]: selects the control source.
C0-C31 : To use a MIDI control change number.
C64-C120 : To use a MIDI control change number.
Note N : To use a note number
Note V : To use note velocity (Note Off is obtained by setting note velocity to 0.)
BENDR : To use a pitch bender
CH-PR : To use channel pressure
M.CLK : To use the MIDI clock (tempo display) as a control source. Settings can be made within the range of 30 to 250.
PEDL 1 : To use pedal 1 (Be sure to select "Pedal" on the System: Pedal screen, page 25).
PEDL 2 : To use pedal 2 (Be sure to select "Pedal" on the System: Pedal screen, page 25).
[Min]: specify the minimal value of the control source's adjustable range.
[Max]: specify the maximal value of the control source's adjustable range.

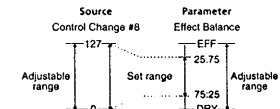Press EXIT a few times to return to the PLAY screen.

EXAMPLE
Suppose you want to set RTC 1 to use the MIDI control change number 8 (balance control) to change the Hall Reverb effect balance from 75:25 to 25:75 :
EDIT: RTC 1 (Parameter) screen (step 5) :
Set [Block] to "HALL" and set [PARAM] to "E. BAL" (effect balance). Then set [Min] to "75:25" and [Max] to "25:75."
EDIT: RTC 1 (Source) screen (step 6):
Set [Source] to "C8" (control 8), [Min] to "0" and [Max] to "127."
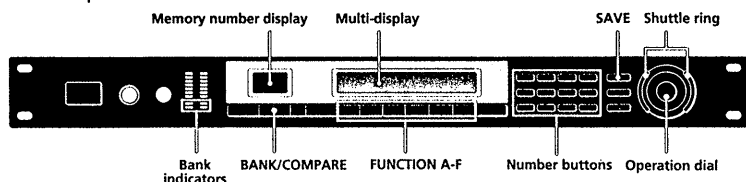
```
         Source              Parameter
     Control Change #8      Effect Balance
       –127–                  –EFF–
                             25:75
   Adjustable     Set range   Adjustable
   range                       range
       –0–                     75:25
                             –DRY–
```

Now you can adjust the effect balance from 75:25 to 25:75 when you adjust control change number 8 (balance control) from 0 to 127.

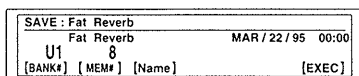# Saving Processed Effects (SAVE)

Saving an Effect

Effects created by changing the parameter values with the edit function can be stored in one of the two USER memory banks for later use. Each USER bank has room for 99 effects, so you can store up to 198 different effects
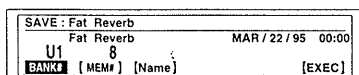
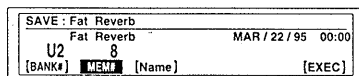The following procedure shows you how to store an effect in one of the USER memory banks.

Memory number display   Multi-display   SAVE   Shuttle ring

Bank indicators   BANK/COMPARE   FUNCTION A-F   Number buttons   Operation dial

1 Press SAVE.

```
SAVE : Fat Reverb
      Fat Reverb           MAR / 22 / 95   00:00
 U1      8
[BANK#]  [ MEM# ]  [Name]                   [EXEC]
```

2 Press FUNCTION A [BANK#] and use the operation dial to select the user memory bank (USER 1 or USER 2) where you want to save the effect.

```
SAVE : Fat Reverb
      Fat Reverb           MAR / 22 / 95   00:00
 U1      8
[BANK#]  [ MEM# ]  [Name]                   [EXEC]
```
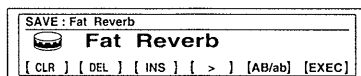
```
A    B    C    D    E    F
```

3 Press FUNCTION B [MEM#] and use the operation dial or number buttons to select the memory number (1-99) where you want to save the effect.

```
SAVE : Fat Reverb
      Fat Reverb           MAR / 22 / 95   00:00
 U2      8
[BANK#]  [MEM#]   [Name]                   [EXEC]
```

```
A    B    C    D    E    F
```

4 Press FUNCTION C [Name].

The Save: name screen appears in the display.

```
SAVE : Fat Reverb
  🔲   Fat Reverb
[ CLR ]  [ DEL ]  [ INS ]  [ > ]  [AB/ab]  [EXEC]
```

Use the	to
Operation dial (shuttle ring)	select icons and characters.
Number buttons	select characters. The display changes as shown below each time you press each button:
	[1] 1 → A → B → C → 1
	[2] 2 → D → E → F → 2
	[3] 3 → G → H → I → 3
	[4] 4 → J → K → L → 4
	[5] 5 → M → N → O → 5
	[6] 6 → P → Q → R → 6
	[7] 7 → S → T → U → 7
	[8] 8 → V → W → X → 8
	[9] 9 → Y → Z → I → 9
FUNCTION A [</CLR]	move the cursor backward. When the cursor is all the way to the left, [CLR] (clear) appears instead of [<] and lets you erase the entire name.
FUNCTION B [DEL]	delete the character at the cursor position.
FUNCTION C [INS]	insert a space at the cursor position.
FUNCTION D [>]	move the cursor forward.
FUNCTION E [AB/ab]	switch between capital or small letters.
FUNCTION F [EXEC]	execute the save operation.

Use EXIT to go back to the previous screen if necessary.

5 Press FUNCTION F [EXEC] to execute the save operation.

The PLAY screen appears in the display.

Protecting USER Memory

This function locks the contents of the specified USER memory number so that new effects cannot be saved to that number and the contents of that memory number cannot be deleted or written over by a copy command.
1 Press SYSTEM.
2 Press FUNCTION B to choose "MEMRY."
3 Press FUNCTION E to choose "PROTECT."
  The operation dial or shuttle ring selects the memory number.
  FUNCTION F turns protection on or off.

Organizing USER Memory

Since each of the USER memory banks can hold up to 99 effects, you may find it difficult to keep track of where certain effects are located. The following procedures show you how to copy, move, swap, and erase effects in the user memory so that you can organize the effects into a comfortable configuration.

Copying a memory file (Copy)
This function lets you copy the contents of a selected USER or PRESET memory number to a specified USER memory number.
1 Press SYSTEM.
2 Press FUNCTION B to choose "MEMRY."
3 Press FUNCTION A to choose "Copy."
  FUNCTION A [SOURC] selects the source memory number to be copied.
  FUNCTION B [DEST] specifies the destination.
  FUNCTION F [EXEC] executes the copy operation.

Moving USER memory (Move)
This function lets move the contents of a specified USER memory number to another USER memory number.
1 Press SYSTEM.
2 Press FUNCTION B to choose "MEMRY."
3 Press FUNCTION B to choose "Move."
  FUNCTION A [SOURC] selects the source memory number to be moved.
  FUNCTION B [DEST] selects the destination.
  FUNCTION F [EXEC] executes the move operation.

Exchanging USER memory (XCHG)
This function lets you exchange the contents of two USER memory numbers.
1 Press SYSTEM.
2 Press FUNCTION B to choose "MEMRY."
3 Press FUNCTION C to choose "XCHG."
  FUNCTION A [MEM1#] selects the first memory number to be exchanged.
  FUNCTION B [MEM2#] selects the second memory number to be exchanged.
 FUNCTION F [EXEC] Executes the exchange operation.

Deleting USER memory (DEL)
This function lets you delete the contents of a USER memory number.
1 Press SYSTEM.
2 Press FUNCTION B to choose "MEMRY."
3 Press FUNCTION D to choose "DEL."
  The operation dial or shuttle ring selects the memory number.
  FUNCTION F [EXEC] executes the delete operation.

Setting the System Environment

In the system mode lets you set up the effector's operating environments. To go back to the previous screen during setup, press EXIT once. To return to the play mode after making adjustments, press EXIT a few times until you reach the PLAY screen.

The following steps describe how to make changes in the system setup.
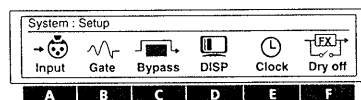
Multi-display   SYSTEM Shuttle ring

FUNCTION A-F   Operation dial
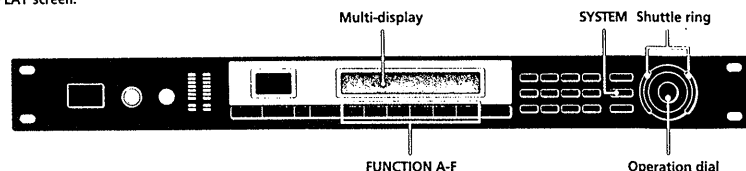
1 Press SYSTEM.

2 Press FUNCTION A to select "Set Up."
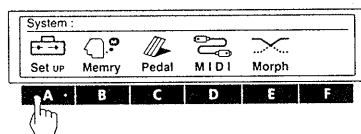
3 Use FUNCTION buttons (A-F) to choose the items you want to adjust.

4 Use FUNCTION buttons (A-F), operation dial, shuttle ring, number buttons, or the SHIFT and ▲ and ▼ buttons to make the adjustments you desire.

Setting the Clock (Clock)

The clock function lets you set the time and date of the effector's built in clock. Once the clock is set, the date and time are automatically stored in the user memory when you save a processed effect.
1 Press SYSTEM.
2 Press FUNCTION A "Set Up."
3 Press FUNCTION E "Clock."
  FUNCTION A [Month] sets the Month.
  FUNCTION B [Day] sets the Day.
  FUNCTION C [Year] sets the Year.
  FUNCTION D [Hour] sets the Hour.
  FUNCTION E [MIN] sets the Minute.
  FUNCTION F [Start] starts the clock.

Setting the Display Mode

The display function lets you adjust the display mode and display contrast.
1 Press SYSTEM.
2 Press FUNCTION A "Set Up."
3 Press FUNCTION D "DISP."
  FUNCTION A [Mode] selects the display mode.
    Name : displays the name of the memory file in large characters and the Active Parameter settings in small characters.
    Value : displays the memory name in small characters and the Active Parameter settings in large characters.
  FUNCTION B [LCD] adjusts the contrast of the display.

Setting the Noise Gate (Gate)

Use the noise gate function when the source of the input signal generates a lot of noise. Running the input signal through the noise gate before processing reduces noise when no sound is being output.
1 Press SYSTEM.
2 Press FUNCTION A "Set Up."
3 Press FUNCTION B "Gate."
  FUNCTION A [ATK], sets the attack time (the rate at which the gate opens).
  FUNCTION B [REL], sets the release time (the rate at which the gate closes).
  FUNCTION C [THR], sets the threshold level (the level at which the gate will close). The larger the value, the larger the signal that will enter the gate.

Cutting the Direct Sound (Dry On/Off)

This setting lets you cut the direct sound and output only the sound of the effect, regardless of the MIXER block's DRY LEVEL setting. When using this unit is connected to a mixer in a send/return loop, as shown on page 12, be sure cut the direct sound.
1 Press SYSTEM.
2 Press FUNCTION A "Set Up."
3 Press FUNCTION F "Dry On/Off."
  The operation dial selects the dry mode.
    OFF : forcibly cuts the direct level (to – ∞) regardless of the direct level setting.
    PGM : the direct level determined by the value stored in the mixer block of each effect.

Setting up the Pedal Parameters

Pedals connected to the PEDAL 1 and/or PEDAL 2 jacks on the rear panel can be used to control the functions listed below.
1 Press SYSTEM.
2 Press FUNCTION C "Pedal."
3 Press FUNCTION A or B to choose "Pedal 1" or "Pedal 2."
  FUNCTION A [Type] sets the type of pedal function.
    MEM +/MEM – : changes memory numbers up/down.
    Bank +/Bank – : changes bank numbers up/down.
    TBL +/TBL – : changes the table numbers specified in the pedal program table up/down.
    Bypass : sets the pedal to work as the bypass switch.
    RTC : sets the pedal to control the parameters set in RTC (see page 21).
  FUNCTION B [MIN] lets you input the setting for when the pedal is in the "up" position (minimum).
  FUNCTION C [MAX] lets you input the setting for when the pedal is in the "down" position (maximum).
  FUNCTION D [Curve] lets you select the MIN to MAX transition curve.
  FUNCTION E [TBL#] lets you select the pedal program table numbers (1–10) when you set FUNCTION A to TBL+/– .
  FUNCTION F [MEM#] lets you select the memory bank and memory number that will respond to the table number set at FUNCTION E.
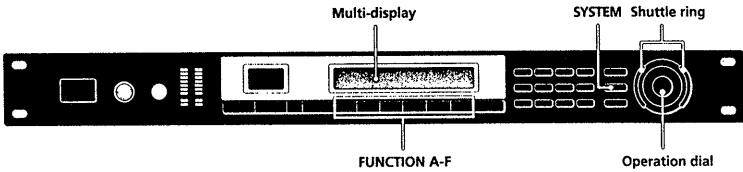
Other Settings

To set "Bypass," see page 15.
To set "Input," see page 13.
To set the MIDI functions see pages 21 and 26.
To organize the user memory, see page 23.
To set the morphing function, see page 16.

Using MIDI

You can use the MIDI interface to control various aspects of this unit. For example, you can switch between memorized effects by using the program table, or save USER memory data onto an external storage device.

In addition, MIDI controls, like wheels and velocity effect controllers, can be used to control things like effect depth in real time. (See "Setting the Real Time Control (RTC)" on page 21.)

Multi-display   SYSTEM Shuttle ring

FUNCTION A-F   Operation dial

1 Press SYSTEM.

2 Press FUNCTION D to select "MIDI."

```
System :
Set up   Memry   Pedal   M I D I   Morph
A    B    C    D    E    F
```

3 Use the FUNCTION buttons (A-F) to choose the MIDI block you want to adjust.

```
System : Midi
Basic   Table   Rx-Sw   Tx-Sw   Bulk-Tx
A    B    C    D    E    F
```

Select	to
Basic	set basic MIDI functions.
Table	determine the MIDI command table.
Rx-SW	determine how MIDI data will be received.
Tx-SW	determine how MIDI data will be transmitted.
Bulk-Tx	send MIDI data in bulk.

4 Use FUNCTION buttons (A-F), operation dial, shuttle ring, number buttons, or the SHIFT and ▲ and ▼ buttons to make the adjustments you desire.

Preparing a Basic MIDI Setup (Basic)

Use "Basic" to set basic MIDI functions .
1 Press SYSTEM.
2 Press FUNCTION D to choose "MIDI."
3 Press FUNCTION A to choose "Basic."
    FUNCTION A [CH] specifies the MIDI channel (1-16).
    FUNCTION B [OMNI] turns the OMNI function ON/OFF.
    FUNCTION C [OUT] sets the MIDI function OUT/THRU.

MIDI Program Table Setup (Table)

TABLE lets you decide how the MIDI commands will effect a given memory number, memory bank .
1 Press SYSTEM.
2 Press FUNCTION D to choose "MIDI."
3 Press FUNCTION B to choose "Table."
    FUNCTION A [MIDI#] selects the MIDI program change number.
    FUNCTION B [BANK#] selects the memory bank or bypass.
    FUNCTION C [MEM#] selects the memory number.

MIDI Receive Switch Setup (Rx-Sw)

Rx-Sw lets you decide how this unit will receive MIDI data.
1 Press SYSTEM.
2 Press FUNCTION D to choose "MIDI."
3 Press FUNCTION C to choose "Rx-Sw."
    FUNCTION A [EXCLV] turns exclusive reception ON/OFF.
    FUNCTION B [P. Chg.] turns program change reception ON/OFF.
    FUNCTION C [C.Chg.] turns control change reception ON/OFF.
    FUNCTION D [CH-PR] turns channel pressure reception ON/OFF.
    FUNCTION E [BENDR] turns pitch bender reception ON/OFF.

MIDI Transmit Switch Setup (Tx-Sw)

Tx-Sw lets you control how MIDI exclusive data is output from this unit (except when using Bulk-Tx).
1 Press SYSTEM.
2 Press FUNCTION D to choose "MIDI."
3 Press FUNCTION D to choose "Tx-Sw."
    FUNCTION A [PANEL] selects the whether or not exclusive messages that appear when buttons on the front panel are pressed will be sent via MIDI OUT.

Transmitting MIDI Data in Bulk (Bulk-Tx)

Bulk-Tx lets you transmit MIDI data in bulk.
1 Press SYSTEM.
2 Press FUNCTION D to choose "MIDI."
3 Press FUNCTION E to choose "Bulk-Tx."
    FUNCTION A [Type] selects the type of data that will be transmitted (U1, U2, U1+U2, SYSTEM, or ALL).
    FUNCTION B [NUM] selects whether to transmit all the contents of a memory bank, or only individual memory numbers (when you select U1 or U2 for the [Type]).
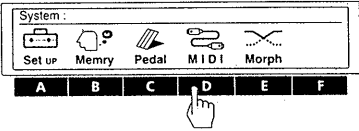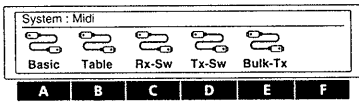   FUNCTION F [EXEC] to sends the data.

Note
Be sure that both the sending and receiving MIDI channels are set to the same values. If the sending and receiving channels are different, the data will not be received even if OMNI is set to ON.

13

Additional Information

Troubleshooting

If this unit does not operate as expected, the problem may simply be an oversight, a disconnected cable or a setting error. Before calling a service technician, compare the symptoms of the problem with those listed below to see if you can correct the problem yourself.

No sound is heard, or the sound is small.
➡ Press BYPASS to cancel mute.
➡ When inputting analog signals, check to see if the INPUT knob is set to the appropriate level.
➡ When inputting digital signals, check the Input levels in the System: Setup.
➡ Check that all the cables are connected correctly.
➡ Make sure the appropriate input mode is selected on the System: Setup Input screen. You cannot input analog signals if the input mode is set to "DIGTL."
➡ Make sure the effect levels in the mixer block are not set excessively low.
➡ Check the volume of the connected amplifier or mixer.

The sound is not modified by the selected effect.
➡ Press BYPASS to cancel bypass.
➡ Is the effect set to "OFF"?

The morphing effect does not work.
➡ Make sure to SAVE the effect after changing the structure to [MORPH].
➡ Make sure the structures of all the effects you want to morph between are set to [MORPH].

The input level CLIP indicator lights.
➡ Turn INPUT to the left to reduce the input level.
➡ Reduce the output level of the source component.
➡ Set the INPUT level selector switch to +4 dB and use the INPUT adjustment knob to re-adjust the input level.

MIDI operations cannot be carried out.
➡ Make sure the MIDI receive channel matches the transmit channel of the MIDI device.
➡ Make sure the MIDI control number is set correctly.
➡ Make sure the MIDI cable is connected securely.

Block Diagram